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Case No. 4221C6

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Madabhushi et al.

Serial No.: 10/040,539

Filed: December 28, 2001

For: **POLYMERS FOR SEPARATION OF
BIOMOLECULES BY CAPILLARY
ELECTROPHORESIS**

Confirmation No.: 4791

) Group Art Unit: 1713

) Examiner: to be assigned

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INFORMATION DISCLOSURE STATEMENT

Assistant Commissioner for Patents
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Sir:

Applicants submit herewith patents, publications or other information (listed on the attached Form PTO-1449) of which they are aware, which may be material to the examination of this application and in respect of which there may be a duty to disclose in accordance with 37 CFR §1.56.

This Information Disclosure Statement:

- (a) ☐ accompanies a new patent application submitted herewith.
- (b) ☒ is filed within three months after the filing date of the application or within three months after the date of entry of the national stage of a PCT application as set forth in 37 CFR §1.491.
- (c) ☐ as far as is known to the undersigned, is filed before the mailing date of a first Office action on the merits.
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- (e) ☐ is filed after the first Office Action and more than three months after the application's filing date or PCT national stage date of entry filing but, as far as is known to the undersigned, prior to the mailing date of either a final action under §1.113, a notice of allowance under §1.311, whichever occurs first, and is accompanied by either the fee (\$180) set forth in 37 CFR §1.17(p) or a certification as specified in 37 CFR §1.97(e), as checked below. Should any fee be due, the U.S. Patent and Trademark Office is hereby authorized to charge Deposit Account No. 01-2213 in the amount of \$180.00 to cover the cost of this Information Disclosure Statement. Any deficiency or overpayment should be charged or credited to this deposit account. **A duplicate of this sheet is enclosed.**
- (f) ☐ is filed after the mailing date of either a final rejection or a notice of allowance, but on or before the payment of the issue fee, and is accompanied by the fee (\$180) set forth in 37 CFR §1.17(i)(1) **and** a certification as specified in 37 CFR §1.97(e), as checked below. **This document is to be considered as a petition requesting consideration of the information disclosure statement.** The U.S. Patent and Trademark Office is hereby authorized to charge Deposit Account No. 01-2213 in the amount of \$180.00 to cover the cost of this Information Disclosure Statement. Any deficiency or overpayment should be charged or credited to this deposit account. **A duplicate of this sheet is enclosed.**

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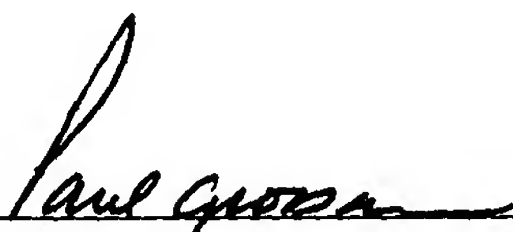
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Respectfully submitted,

Date: 3-26-02


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Attorney for Applicants

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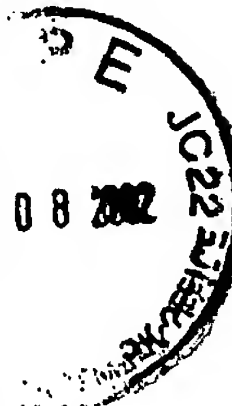
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				Application Number	10/040539
				Filing Date	December 28, 2001
				First Named Inventor	Madabhushi et al.
				Group Art Unit	1713
				Examiner Name	to be assigned
Sheet	1	of	4	Attorney Docket No.	4221C6



U.S. PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code ² (if known)			
	1.	4,048,377		Boschetti et al.	09-13-1977	
	2.	4,865,707		Karger et al.	09-12-1989	
	3.	4,963,243		Ogawa et al.	10-16-1990	
	4.	4,997,537		Karger et al.	03-05-1991	
	5.	5,015,350		John Wiktorowicz	05-14-1991	
	6.	5,069,766		Zhu et al.	12-03-1991	
	7.	5,089,111		Zhu et al.	02-18-1992	
	8.	5,126,021		Paul Grossman	01-30-1992	
	9.	5,164,055		Robert Dubrow	11-17-1992	
	10.	5,264,101		Demoest et al.	11-23-1993	
	11.	5,374,527		Paul Grossman	12-20-1994	
	12.	5,545,302		Zhu et al.	08-31-1996	
	13.	5,552,028		Madabhushi et al.	09-03-1996	
	14.	5,567,292		Madabhushi et al.	10-22-1996	

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		Office ³	Number ⁴	Kind Code ⁵ (if known)				
	15.	GB	1,121,449		Bausch & Lomb	07-24-1968		
	16.	FR	2,448,553		FMC Corp.	09-05-1980		
	17.	WO	WO93/22665		Applied Biosystems	11-11-1993		
	18.	EP	0 429 772		Hewlett-Packard	10-25-1995		

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Sheet	2	of	4	Attorney Docket No.	4221C6

OTHER ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials ¹	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	19.	Robb et al., "The adsorption of a copolymer of vinyl pyrrolidone and allylamine at the silica-solution interface," <u>European Polymer J.</u> 10:1005-1010 (1974)	
	20.	Bode, "The use of liquid polyacrylamide in electrophoresis," <u>Anal. Biochem.</u> 83:204-210 (1977)	
	21.	Gargallo et al., "Adsorption characteristics of polyvinylpyrrolidone at solid-liquid interface," <u>Colloid & Polymer Science</u> 255:556-559 (1977)	
	22.	Takahashi et al., "The structure of macromolecules adsorbed on interfaces," <u>Advanced in Polymer Science</u> 46:3-65 (1982)	
	23.	Vincent et al., "Polymers at interface and in dispense systems," <u>Surface and Colloid Science</u> 12:1-117 (1982)	
	24.	Jorgenson et al., "Capillary Zone Electrophoresis," <u>Science</u> 222:266-272 (1983)	
	25.	Horowitz et al., "Electrophoresis of proteins and nucleic acids on acrylamide-agarose gel lacking covalent crosslinking," <u>Anal. Biochem.</u> 143:333-340 (1984)	
	26.	Silberberg, "Adsorption," <u>Encyclopedia of Polymer Science and Technology</u> , Science ed., 1:577-594 (1985)	
	27.	Herren et al., "Control of electroosmosis in coated quartz capillaries," <u>J. Colloid and Interface Science</u> 115:46-55 (1987)	
	28.	Cohen et al., "Rapid separation of DNA restriction fragments using capillary electrophoresis," <u>J. Chromatography</u> 458:323-333 (1988)	
	29.	Hjerten et al., "High-performance electrophoresis of acidic and basic low-molecule weight compounds and of proteins in the presence of polymers and neutral surfactants," <u>J. Liquid Chromatography</u> 12:2471-2499 (1989)	
	30.	Paulus et al., "Calibration of polyacrylamide gel columns for the separation of oligonucleotide by capillary electrophoresis," <u>Electrophoresis</u> 11:702-708 (1990)	
	31.	Karger et al., "Multiwavelength fluorescence detection of DNA sequencing using capillary electrophoresis," <u>Nucleic Acids Research</u> 19(18):4955-4962 (1991)	

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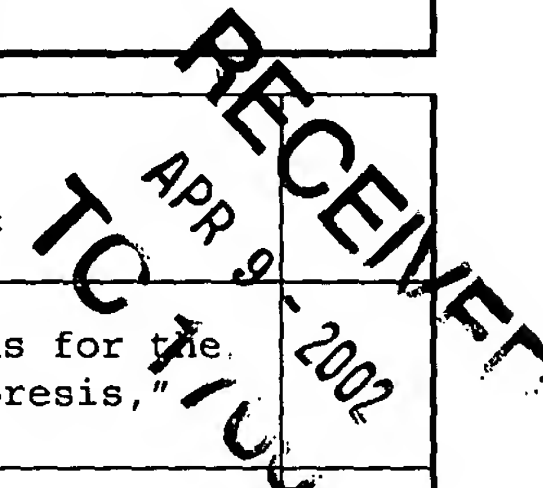
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32.	Smith et al., "The synthesis and use of fluorescent oligonucleotides in DNA sequence analysis," <u>Methods in Enzymology</u> 155:260-301 (1991)	
33.	Sudor et al., "Pressure refilled polyacrylamide columns for the separation of oligonucleotides by capillary electrophoresis," <u>Electrophoresis</u> 12:1056-1058 (1991)	
34.	Takagi et al., "Application of schlieren optics to real-time monitoring of protein electrophoresis in crosslinker-free linear polyacrylamide solution," <u>Electrophoresis</u> 12:436-438 (1991)	
35.	Widhalm et al., "Capillary zone electrophoresis with a liner, no-cross-linked polyacrylamide gel: separation of proteins according to molecular mass," <u>J. Chromatography</u> 549:451 (1991)	
36.	Amiel et al., "FTIR study of copolymer adsorption on silica," <u>J. of Colloid and Interface Science</u> 149:481-492 (1992)	
37.	Belder et al., "Modification of silica surface for CZE by absorption of non-ionic hydrophilic polymers or use of radial electric fields," <u>J. High Resolution Chromatography</u> 15:686-693 (1992)	
38.	Gilges et al., "CZE separation of basic proteins at low pH in fused silica capillaries with surfaces modified by silane derivatization and/or adsorption of polar polymers," <u>J. High Resolution Chromatography</u> 15:452-457 (1992)	
39.	Jorgenson, "Capillary electrophoresis: and introduction," <u>Methods</u> 4:179-190 (1992)	
40.	Malmsten et al., "Adsorption of PEP-PPO-PEO block copolymers at silica," <u>Macromolecules</u> 25:2474-2481 (1992)	
41.	Tietz et al., "Advances in DNA electrophoresis in polymer solutions," <u>Electrophoresis</u> 13:614-616 (1992)	
42.	Towns et al., "Polyethyleneimine-bonded phases in the separation of proteins by capillary electrophoresis," <u>J. Chromatography</u> 516:69-78 (1992)	
43.	Ulfelder et al., "Restriction fragment length polymorphism analysis of ERBB2 oncogene by capillary electrophoresis," <u>Anal. Biochem.</u> 200:260-267 (1992)	
44.	Williams, "The analysis of DNA restriction fragments and polymerase chain reaction products by dynamic sieving electrophoresis," <u>Methods</u> 4:232 (1992)	

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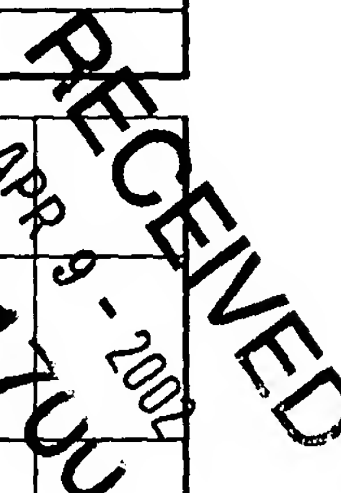
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45.	Barron et al., "Capillary electrophoresis of DNA in uncross-linked polymer solutions," <u>J. Chromatography A</u> , 652:3-16 (1993)	
46.	Bea et al., "Polymeric separation media for electrophoresis: crosslinked systems or entangled polymers," <u>J. Chromatography A</u> , 652:17-22 (1993)	
47.	Chiari et al., "Movement of DNA fragments during capillary zone electrophoresis in liquid polyacrylamide," <u>J. Chromatography A</u> , 652:31-39 (1993)	
48.	Hijerten et al., "A new type of pH- and detergent-stable coating for elimination of electroendosmosis and adsorption in (capillary) electrophoresis," <u>Electrophoresis</u> , 14:390-395 (1993)	
49.	Izumi et al., "Use of glucomannan for the separation of DNA fragments by capillary electrophoresis," <u>J. Chromatography A</u> , 652:41-46 (1993)	
50.	Kleemiß et al., "Polymers as buffer components for CE separations of larger oligonucleotides," <u>Poster presented at the Fifth International Symposium on High Performance Capillary Electrophoresis</u> , Orlando, FL. (1993)	
51.	McCord et al., "High resolution capillary electrophoresis of forensic DNA using a non-gel sieving buffer," <u>J. Chromatography</u> , 16:1963-1981 (1993)	
52.	Smith et al., "Capillary zone electrophoresis of biological substances with fused silica capillary having zero or constant electroosmotic flow," <u>Electrophoresis</u> 14:396-409 (1993)	
53.	Ruiz-Martinez et al., "DNA sequencing by capillary electrophoresis with replaceable linear polyacrylamide and laser-induced fluorescence detection," <u>Anal. Chem.</u> 65:2851-2858 (1993)	
54.	Wehr, "Recent advances in capillary electrophoresis columns," <u>LCGC</u> 11:14-20 (1993)	
55.	Grant et al., <u>Chemical Dictionary</u> , 5 th ed., pp. 122	
56.	Schomburg, "Oligonucleotide [separation by capillary electrophoresis],"	



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